

## ABSTRACT

**[0074]** A chemically-bonded cement material and concrete which includes a calcium aluminate component, a calcium silicate component, a sodium phosphate compound, and bottom ash which chemically reacts with the sodium phosphate compound to produce calcium phosphates. The chemically bonded cement may include a polymeric compound, such as acrylic-styrene copolymer, and fibrous materials, such as E-glass fibers, carbon fibers, or polypropylene. The concrete includes the chemically-bonded cement and aggregates. The materials are well suited as rapid setting repair patching and fill for damaged roads, remediating material for contaminated soil and as backfill underlayment, and as high strength precast concrete products.